Table S.1. Main reflections in the X-Ray powder pattern of uranophane-α: a) Experimental spectrum (pattern 78-1840 from the PDF-2 database); b) X-Ray powder pattern computed from experimental geometry (Ginderow, 1988); c) X-Ray powder pattern computed from calculated geometry.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Experimental (a)** | | | | **Experimental (b)** | | | **Theoretical** | | |
| **2Ѳ** | **d(Å)** | **I(%)** | **hkl** | **2Ѳ** | **d(Å)** | **I(%)** | **2Ѳ** | **d(Å)** | **I(%)** |
| 11.205 | 7.8906 | 100.0 | [002] | 11.205 | 7.890 | 100.0 | 11.255 | 7.8555 | 100.0 |
| 13.381 | 6.6114 | 19.618 | [100] | 13.381 | 6.611 | 18.218 | 13.399 | 6.6028 | 20.808 |
| 16.353 | 5.4163 | 20.554 | [-102] | 16.353 | 5.416 | 18.418 | 16.265 | 5.4452 | 20.638 |
| 18.442 | 4.8071 | 28.222 | [110] | 18.442 | 4.807 | 24.725 | 18.454 | 4.8039 | 29.147 |
| 20.716 | 4.2842 | 8.832 | [-1-12] | 20.716 | 4.284 | 6.907 | 20.647 | 4.2985 | 9.434 |
| 22.508 | 3.9471 | 13.933 | [112] | 22.518 | 3.945 | 34.835 | 22.644 | 3.9237 | 14.800 |
| 22.518 | 3.9453 | 29.656 | [004] | 22.518 | 3.945 | 34.835 | 22.620 | 3.9278 | 30.001 |
| 24.753 | 3.5939 | 12.114 | [-104] | 24.753 | 3.594 | 9.509 | 24.672 | 3.6055 | 13.054 |
| 25.421 | 3.5010 | 19.901 | [020] | 25.421 | 3.501 | 16.016 | 25.420 | 3.5011 | 18.783 |
| 27.857 | 3.2001 | 25.850 | [022] | 27.857 | 3.200 | 22.723 | 27.877 | 3.1979 | 26.584 |
| 29.865 | 2.9893 | 29.178 | [210] | 29.865 | 2.989 | 21.822 | 29.898 | 2.9861 | 29.875 |
| 30.583 | 2.9207 | 9.016 | [114] | 30.583 | 2.921 | 8.008 | 30.818 | 2.8990 | 8.899 |
| 30.722 | 2.9078 | 17.358 | [-2-12] | 30.723 | 2.908 | 14.815 | 30.623 | 2.9171 | 18.113 |
| 33.215 | 2.6951 | 14.807 | [212] | 33.215 | 2.695 | 10.811 | 33.402 | 2.6804 | 14.121 |
| 43.142 | 2.0952 | 4.943 | [-3-12] | 43.142 | 2.095 | 9.309 | 43.041 | 2.0999 | 4.943 |